

WHAT IS CLAIMED IS:

1. A method to establish an adjustable on-chip impedance within a predetermined range, the method comprises:
establishing a reference current for the adjustable on-
5 chip impedance;
sensing a voltage produced by applying the reference current to the adjustable on-chip impedance;
comparing the sensed voltage with a reference voltage;
and
10 tuning the adjustable on-chip impedance when the comparison of the sensed voltage and the reference voltage is unfavorable, such that an impedance value of the adjustable on-chip impedance is within
predetermined range that accounts for variance of
15 the reference current and the reference voltage.

2. The method of Claim 1 further comprises setting the impedance value of the adjustable on-chip impedance to an initial value prior to applying the reference current to the adjustable
20 on-chip impedance.

3. The method of claim 2, wherein the initial value of the adjustable on-chip impedance comprises at least one of a minimum impedance value, a maximum impedance value, and a nominal
25 impedance value.

4. The method of Claim 1, wherein tuning the adjustable on-chip impedance further comprises:

changing the impedance value to produce an altered impedance value;

5 applying the reference current to the adjustable on-chip impedance having the altered impedance;

sensing the voltage produced by applying the reference current to the adjustable on-chip impedance having the altered impedance; and

10 comparing the sensed voltage with the reference voltage, wherein tuning the adjustable on-chip impedance continues when the comparison of the sensed voltage and the reference voltage is unfavorable.

15 5. The method of claim 1, wherein tuning the adjustable on-chip impedance further comprises:

determining a voltage difference between the sensed voltage and the reference voltage; and

20 determining an impedance adjustment to the adjustable on-chip impedance based on the voltage difference.

6. The method of claim 1, wherein comparing the sensed voltage with a reference voltage further comprises:

25 comparing the sensed voltage with a first reference voltage, wherein the first reference voltage corresponds to a low threshold of the range of acceptable impedance values; and

30 comparing the sensed voltage with a second reference voltage, wherein the second reference voltage corresponds to a high threshold of the range of acceptable impedance values.

7. The method of claim 1, wherein the adjustable on-chip impedance corresponds to a termination resistor for universal serial bus (USB) transmit lines.

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8. A calibration circuit to establish an impedance value of an adjustable on-chip impedance within a predetermined range, comprising:

10 a reference current source to provide a reference current, which is applied across the adjustable on-chip impedance;

15 a comparator operably coupled to sense and compare a voltage generated across the adjustable on-chip impedance, and a reference voltage, and wherein the comparator provides an output that indicates when the comparison of the sensed voltage and the reference voltage is unfavorable; and

20 a tuning module to receive the output of the comparator and to increment the adjustable on-chip impedance when the comparison of the sensed voltage and the reference voltage is unfavorable such that an impedance value of the adjustable on-chip impedance is within a predetermined range that accounts for variance of the reference current and the reference

25 voltage.

9. The calibration circuit of Claim 8, wherein the reference current and reference voltage derive from a bandgap voltage reference.

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10. The calibration circuit of Claim 8, wherein the reference current source comprising a current mirror, which provides at least some of the variance of the reference current.

5 11. The calibration circuit of Claim 9, wherein:
the tuning module changes the impedance value to
produce an altered impedance value of the adjustable
on-chip impedance to which the reference current is
applied;
10 the comparator compares the sensed voltage produced by
applying the reference current to the adjustable on-
chip impedance and the reference voltage; and
wherein tuning module continues to change the
adjustable on-chip impedance when the comparison of
15 the sensed voltage and the reference voltage is
unfavorable.

12. The calibration circuit of Claim 8, wherein the adjustable on-chip impedance corresponds to a termination
20 resistor for universal serial bus (USB) transmit lines.